

# FY09 NextGen Portfolio



Federal Aviation  
Administration

## *Trajectory Based Operations – Separation Management – Modern Procedures (Separation Automation Enhancements, D-Side and R-Side)*

*Date: December 2008*

### *Overview*

- **Project Capability**
- **Project Smart Sheet**
  - Project Description
  - Problem/Performance Gap/Mission Shortfall Description
  - Project Objectives/Description of Solution
  - Support to Goals
    - Flight Plan
    - NextGen Implementation Plan
  - Interdependencies
    - Capabilities/OIs, EA Decision Points
    - Projects/Demonstrations/Programs
- **Project Schedule – include deliverables and links to EA & Goals**
- **Project Risk Identification and Mitigation Strategy**
- **Project Details**
- **Supporting Activities – Policy, International efforts, Working Groups, etc.**
- **Key Personnel**

Trajectory Based Operations



### Project Capability

- **Enhancements to existing En Route Automation to assist the controller in maintaining aircraft separation.**
  - Performance Based Navigation
  - Conflict Probe
  - Conflict Alert
  - Flight Data Display

Trajectory Based Operations



# Project Smart Sheet

### • Project Description

The project will demonstrate, validate, and establish automation requirements to assist in the separation of aircraft in traditional traffic situations and in Performance Based Navigation situations.

### • Problem/Performance Gaps

With an increasing traffic and diversity of aircraft characteristics, manual separation is becoming increasingly inefficient. Aircraft are being equipped with navigation avionics which do not have complementary ground automation.

### • Solution

In the performance-based concept aircraft can navigate with increased accuracy, adding ground based automation to support the use of this equipment is essential to increased safety. Existing controller tools can be enhanced with new or enhanced algorithms to assist controllers. Separation management includes changes to procedures.

### • Support to Goals

Flight Plan Goal – Increased Safety

Flight Plan Objective – Enhance the safety of FAA's air traffic systems.

Pathway Goal – Ensure Viable Future

Pathway Objective – Deliver the NextGen/OEP commitments

### • Interdependencies

ERAM Post Release 3 Final Investment Decision

102117 – Reduce Horizontal Separation Standards – 3 Miles

102122 - Use Aircraft Provided Intent Data to Improve Conflict Resolution

102137 – Automation Support for Mixed Environments

108209 – Increase Capacity and Efficiency Using Area Navigation (RNAV) and Required Navigation Performance (RNP)

## Trajectory Based Operations



## Separation Management – Modern Procedures

### Project Schedule (FY 09)

Description	S	O	N	D	J	F	M	A	M	J	J	A	S
Performance Based Navigation (PBN) Route Eligibility Checking Development													△
Separation Management Concept of Operations	△ Initial									△	Final		
Separation Management Operational Analysis				△ Report									
Separation Management Human-in-the-Loop Analysis									△			Report	△
Separation Management Conflict Probe Error Sources Study				△									
Separation Management Data Controller CHI Engineering Study													△

### Trajectory Based Operations



### Project Schedule (FY 10)

- As of this date no contract is in place to conduct Separation Management work in FY 2010. The general plan is to:
- Develop the material necessary to establish an En Route Post ERAM Release 3 baseline.
- Conduct investigations such as: concepts of operation and concepts of use, prototypes, analyses, white papers, trajectory modeling, demonstrations, human-in-the-loop investigations, requirements analysis, and business cases.

Trajectory Based Operations



# Project Details

- **Current Status (FY09 Funding) is for**
  - PBN Route Eligibility Checking Baseline ERAM Software
  - Data Controller Computer-Human-Interface (CHI) Enhancements Prototype and CHI Report
  - Conflict Alert Safety Improvements Prototype and Test Data
  - Coordination with related programs
  - Identification of incremental functionality and needed Investment Analysis activities for Post ERAM Release 3 software
- **Acquisition Strategy**
  - FY09 and FY10
    - ERAM contract for Initial Implementation
    - Existing TAC2, MITRE Industrial Funding, Terminal Support Contracts
  - Beyond FY10 – establish an ERAM Post Release 3 contract

Trajectory Based Operations



### Project Details (continued)

- **Related Programs** – ADS-B, ATOP
- **System Dependencies** – Modern PBN-based Airspace and Procedures, ICAO Flight Plan Adoption, Availability of Aircraft Intent Data
- **System Requirements will be developed for**
  - Data Controller CHI Enhancements
  - PBN FMC Offset
  - Conflict Alert and Conflict Probe Safety Improvements
- **Other activities required to reach implementation**
  - Development and maintenance of a project plan to incrementally identify needed pre-implementation work
  - Human-in-the-loop Simulations, prototypes, Operational Concept validation, Concept of Use development
  - Where automation tool enhancements impact the controller, carefully planned training will be required

### Trajectory Based Operations





### *Resources*

- **FAA Personnel**
  - ATO-E – Program Operations, S&BS, SOS, F&P
  - ATO-P – SE&SO, AR&TD, NextGen I&I, NextGen M&S, WJHTC (Human Factors Lab, Simulation and Analysis)
- **Other Government Personnel**
  - TBD
- **Contract Personnel**
  - TAC2, MITRE, MCRI
  - ERAM Contractor
  - Others – TBD
- **Challenges**
  - Funding for planning support and Post ERAM Release 3 Final Investment Decision

Trajectory Based Operations



## *Acquisition Status/Requirements*

- **Existing Contracts**
  - ERAM
    - Vendor – Lockheed Martin
    - Contracting Officer – Tim Costas/ATO-A
    - COTR – Steve Skipper/ATO-E
  - TAC2
  - MITRE Industrial Funding
  - Other - TBD
- **New Contract Requirements**
  - TBD

Trajectory Based Operations



### ***FY '09 NextGen Implementation Plan Commitments***

(PLA Milestones)

- **FY '09 Major Milestones to be reported in the NextGen Implementation Plan - None**
- **FY '09 NASEA Decisions supported**
  - DP 43, Approve ERAM Release 3 package contents
- **FY '09 Deliverables/Products**
  - PBN Route Eligibility Checking S/W
  - Investigation for equipage and navigation discriminators
  - Overarching Separation Management Concept of Operations
  - Conflict Alert Safety Improvements Concept of Operations

*NextGen... Integrating Ideas, Systems and Solutions*

**Trajectory Based Operations**

